CLAIMS

1. Method for controlling the reaction temperature in a catalytic bed (24) of a reactor (1) in which a chemical reaction takes place in pseudo-isothermal conditions by means of at least one heat exchanger (12), crossed by a respective operating fluid, immersed in said catalytic bed (24), which method is characterized in that it comprises the step of:

- setting the speed of said heat exchange fluid inside the respective heat exchanger (12) within predetermined values, so that the heat exchange coefficient inside said heat exchanger (12) is less than the heat exchange coefficient in the catalytic bed (24).

2. Method according to claim 1, characterized in that said speed of said heat exchange fluid inside the respective heat exchanger is regulated within values such that the heat exchange coefficient inside the heat exchangers (12) is equal to or less than 2/3 the heat exchange coefficient inside the catalytic bed (24).

3. Method according to claim 1, characterized in that said reactor (1) comprises at least two heat exchangers (12) immersed in the catalytic bed (24) and in that it comprises the steps of:

- continuously detecting in said catalytic bed the temperature difference ΔT between the temperature of the catalytic bed at said heat exchangers and a limit temperature T_1 at a middle point between said heat exchangers;

- varying the speed of said heat exchange fluid inside said heat exchangers, according to the aforementioned temperature difference ΔT, obtaining a corresponding variation of the heat exchange coefficient inside said heat exchangers.

4. Pseudo-isothermal chemical reactor comprising a catalytic bed (24) and at least two heat exchangers (12) immersed in said catalytic bed (24), characterized in that it comprises an apparatus (20) for adjusting the temperature inside a reaction zone (15) of said catalytic bed defined between said heat exchangers (12), comprising a probe (23) for continuously measuring the temperature difference ΔT between the temperature in a central position of said zone (15) and the temperature of said zone (15) at said heat exchangers (12), a control unit (21), in data communication with said probe (23), and a feeding speed regulator (22) of an operating fluid (F_o) in said heat exchangers (12), in data communication with said control unit (21).